
From: Michael Rozengurt [mailto:rozengurt@earthlink.net]
Sent: Saturday, April 10, 2010 1:18 AM
To: kierassciates@suddenlink.net; phil@isenberg-oharen.com; hayd0cki@aol.com;
clairfield@sierraclub-sac.org; c@davidnesmith.com; pclmail@pcl.org
Cc: mike; rhisch@usgs.gov
Subject: Letter to Governor

Arnold Schwarzenegger
Honorable Governor
of California

On June 20, 1980, Irwin Haydock (Ph.D. biology) and I (Michael Rozengurt, Ph.D., P.H.. in the fields of oceanography and hydrology) sent a letter to California's then Governor Jerry Brown and subsequently spread it among numerous others State officials as well as scientists of different entities (see, e.g., http://deltavision.ca.gov/docs/9_Comment_from_Irwin_Haydock_11-30-07.pdf)

This two pages letter was based on almost 50 years combined experience and backed by many publications of Dr. Rozengurt as a principal investigator in the former U.S.S.R., concerning the effect of man's activities on environment of River – Delta – Estuary – Coastal sea ecosystems (over 80 publications, including several monographs – some available in the Library of Congress).

Note that a part of the above references were translated in 1981 by California's Dept. Water Resources and some fundamental conclusions were republished in English in *"Water, Water Everywhere But Just so Much to Drink"* in *"Oceans"* Magazine, September 1981 (an Editor and Publisher of this journal at that time was a grandson of President Roosevelt).

Note that in the above-mentioned letter, the following warnings were given to result if, with the help of a Peripheral Canal, there were increasing water withdrawals from Delta for transport to the South, which was the subject of discussion in the press of 1980 almost every day. In short, at that time we wrote to Governor:

1. That accumulative reduction of runoff, especially in spring, of 30% or more percent of **Normal**, i.e. (the average over 55-60 years in concert with international statistic and UNESCO methodical regulation), will lead to negative, in term of quality, transformation in regime characteristics of Delta - S.F. Bay.
2. Note that this process corresponds to Universal Laws of Thermodynamics and their derivative characteristic as Entropy. A sign of gradual, prospective demise of Delta – San Francisco Bay ecosystem, provoke by intensive, i.e. more then the natural limit in water withdrawals — approximately 30%!
3. Further depletion spring and annual runoff will exacerbates degradation of physical and chemical features of habitat of lower river – Delta – San Francisco Bay ecosystem within a decade;
4. Note that accompanying cumulative losses of sediment load and gradual increases in salt intrusion and salinization of deltaic water will intensify light penetration, eutrophication, decrease dissolved oxygen, and dangerously chip away at levee foundations.
5. Note that all of these and other factors result in marked depletion of biological productivity and massive collapse of landings fish and shellfish. Therefore, leaving **no water, no habitat, no fish or other resources**.

Unfortunately, some in the environmentally naive political establishment of the past fully ignored this letter as well as the results cited in local and international publications (publications of 1920-1980, and later, my two book-length reports from CSUSF's Tiburon Center for Environmental Studies, 1987,1988).

Despite the facts that I emphasized that a "Peripheral Canal" was built in the Volga Delta in 1974 (for the same purpose as discussed in California's case), with a \$4 billion dollar price tag

(**M. Rozengurt and J Hedgpeth, 1989, Revs. Aquatic Science, 1 (2: 337-362).** Its operation in the Volga Delta has resulted in a mortal blow for both habitat and fishery resources of the Delta-North Caspian ecosystem.

Note that the late Mr. **Randall L. Brown, DWR biologist** from DWR's Kennedy administration, was sent to Russia in 1991 to meet some Delta Volga Administration to check my statements and writing about happen to be environmental disaster - Volga Divider, or Peripheral Canal.

According his later personal sharing of facts, he found that my published statement about the Volga unfortunate adventure of billion rubles price tag corresponded to reality.

In addition, Mr. Brown showed Rozengurt (me) at the end of that summer his devastating report to Director Kennedy of DWR about environmental and economical role of Volga Delta Peripheral Canal in the entirely negative transformation of Volga Delta regime characteristics, and migration, spawning, and fishery.

Nowadays, I again urge you and State Administration to facilitate a more rational water policy based on statistically validated results of scientific investigation of runoff and fishery over 40-60 years in that (my two book-length reports from CSUSF's Tiburon Center for Environmental Studies, 1987, 1988):

1. California possesses only 28.5 MAF on average of unimpaired runoff over a perennial period (60 years) in the Sacramento-San Joaquin watershed. This amount determines entirely the survival of the Delta-San Francisco Bay and the State's precious coastal resources;

2. the Sacramento - San Joaquin rivers' spring runoff, the lifeblood of any river system, has already been reduced to 10 to 30% of what once was around 11 MAF on average (spring unimpaired runoff as computed over 55 to 60 years).

3. Since 1955 the excessive water withdrawals have deprived the Bay over 600 MAF (million-acre-feet, or 720 cubic kilometers) of freshwater runoff or 100 and 500 times of the volumes of the Bay and Delta, respectively,

In addition, at the same time, millions of tons of organic and inorganic matter, suspended sediment, oxygen, and other components of delta regime characteristics have been left behind the dams and in water conveyance facilities, and, therefore, have not reached Delta waterbody.

But historically, the Delta is the heart (fig.) of river - estuarine ecosystem and the most suitable home, nursery and breeding ground for many commercially important species. In process of deltaic tributaries evolution, they have passed millions acre-feet water, saturated with organic and inorganic load from river watershed, and produced, circulated and reprocessed nutrient increment (about 70%) within their freshwater body. This has maintained the unique richness of delta as a whole. Furthermore, the delta outflow acts as a buffer zone to repel saltwater intrusion, and flushes the natural and human introduced pollutants. However, when human-induced subnormal wetness prevails due to excessive water diversion, myriads of negative features are developed nearly simultaneously in delta. Among them, the salinization of delta water body. This is most insidious, the inverse of the runoff process.

Since, any statement about "Restoration" of the Delta with the help of Peripheral Canal or other constructions under manifested of seasonal and annual runoff deprivation was, is, and will be environmentally and economically dangerous fallacy! For "No One Can Get Something from Nothing, i.e. no runoff - no habitat - no living resources." Unfortunately, the past and current incessant water development has almost brought about despoliation of the Delta. In reality, as we can see, the dissection of Sacramento and San Joaquin rivers by numerous dams and other water relocation

*systems has significantly distorted their physical and biological interactions. Therefore, all belies the statements claiming that it is possible to restore historical habitats of impounded Delta despite the fact that it functions under conditions of enormous water withdrawals and broken river continuum has nothing in common with history of their evolution. Undoubtedly, such statement should be considered as **reduction ad absurdum**.*

*In conclusion I dare to state that only powerful desalination plant(today, over **7,500 desalination** plants in operation worldwide) built in the Bay area or other regions can save the Delta from water starvation and agonizing demise, for desalinated, i.e. fresh water can recharge conveyance systems as drought conditions occur and concern over water availability increases.*

Cordially,

M. Rozengurt, Ph.D., P.H.

Cc.: Kier Associates, Dr. I. Haydock, J. Minton, Alf W. Bradt, J. Meral.